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APPENDIX E

U.S. Patents equating "Unitary" Construction" with "One-piece" Construction

United States Patent [19]

Newby, Sr.

[11] Patent Number: 4,662,515

[45] Date of Patent: May 5, 1987

[54] PLASTIC BLOW-MOLDED ARTICLES WITH FOLD-UP SIDES

[75] Inventor: John P. Newby, Sr., Wake County, N.C.

[73] Assignee: Southern Case, Inc., Raleigh, N.C.

[21] Appl. No.: 840,775

[22] Filed: Mar. 18, 1986

[51] Int. Cl.[4] B65D 6/12; B65D 6/16

[52] U.S. Cl. ..... 206/349; 220/4 F; 220/6; 312/258; 312/257 A; 312/DIG. 33

[58] Field of Search ..... 220/6, 4 F; 312/257 SM, 312/DIG. 33, 257 R, 257 SK, 258, 257 A, 261; 206/349

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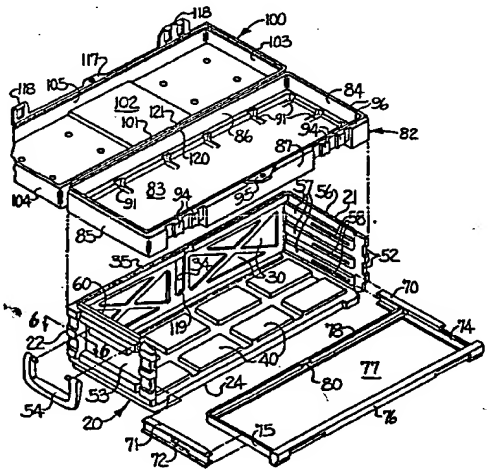
Primary Examiner—Joseph Man-Fu Moy

Attorney, Agent, or Firm—Bell, Seltzer, Park & Gibson

[57] ABSTRACT

The plastic blow-molded container of the present invention is illustrated in the form of a tool chest including a lower tool compartment that is initially blow molded in a flat condition with side walls being simultaneously molded with and joined to a bottom wall by integral flexible plastic hinges so that the side walls can be raised up into right angular relationship with the bottom wall. The simultaneous blow molding of the walls of the compartment in flat condition with the bottom wall permits the integral formation of drawer supporting ribs extending inwardly from the side walls and also permits the formation of a compartment having a greater depth than has been possible in known types of unitary one-piece blow-molded containers. Support ledges are integrally formed on the interior walls and adjacent the living hinges so that the side and rear walls are rigidly supported on the support ledges when the rear and side walls are raised up into right angular relationship with the bottom wall. The living hinges are not required to support any weight or force applied to the side and rear walls but merely act to maintain the side and rear walls in alignment above the peripheral edge portions of the bottom wall.

21 Claims, 19 Drawing Figures



US006331054B1

(12) **United States Patent**
Seu et al.

(10) **Patent No.: US 6,331,054 B1**
(45) **Date of Patent: Dec. 18, 2001**

(54) **UNITARY ONE-PIECE BODY STRUCTURE FOR INK-JET CARTRIDGE**

(75) Inventors: **Preston Seu**, Vancouver, WA (US); **Patrick Boyd**; **Gary Powell**, both of Albany, OR (US)

(73) Assignee: **Hewlett-Packard Company**, Palo Alto, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/664,625**

(22) Filed: **Sep. 19, 2000**

Related U.S. Application Data

(62) Division of application No. 09/516,922, filed on Mar. 2, 2000, now Pat. No. 6,260,961.

(51) **Int. Cl.**[7] **B41J 2/175**
(52) **U.S. Cl.** **347/87**; 347/86
(58) **Field of Search** 347/86, 87; 425/548; 264/239, 250, 251, 245, 249

(56) **References Cited**

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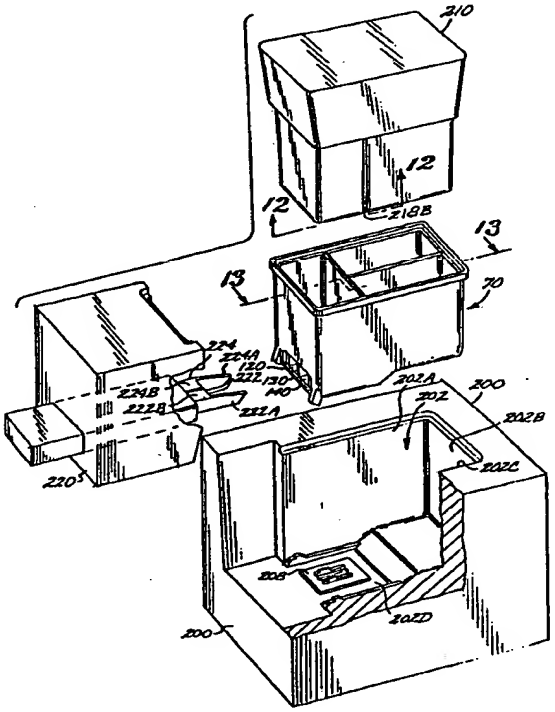
Primary Examiner—Anh T. N. Vo

(57) **ABSTRACT**

A multi-compartment ink-jet cartridge body structure, which includes a unitary body having a plurality of ink reservoir compartments. Each compartment includes an outlet port through which ink passes to feed the ink to an ink-jet printhead nozzle array. The body further includes a printhead nozzle array mounting region, and an ink manifold structure including a plurality of corresponding ink channels each leading from a corresponding outlet port to a feed opening formed at the printhead mounting region. The body and manifold structure are formed as a unitary one-piece structure. A lid is attached to the unitary body to cover the compartments. The body includes an external wall, and an access opening is formed in the wall adjacent the manifold structure. A seal structure attached to the body for sealing the access opening. The body structure can be fabricated by a plastic material using an injection molding process. The access opening is a mold slide insert opening in the nose-piece area, and the seal structure seals the slide insert opening. The molding process can be carried out by a three piece mold set to fabricate the body.

9 Claims, 6 Drawing Sheets



US005285732A

United States Patent [19]

Gottlieb

[11] Patent Number: 5,285,732

[45] Date of Patent: Feb. 15, 1994

[54] PALLET OF UNITARY CONSTRUCTION

[75] Inventor: Norman J. Gottlieb, Thornhill, Canada

[73] Assignee: Container Corporation International Ltd., Bridgetown, Barbados

[21] Appl. No.: 977,977

[22] Filed: Nov. 18, 1992

[51] Int. Cl.[5] B65D 19/00

[52] U.S. Cl. 108/51.3; 108/51.1

[58] Field of Search 108/51.3, 51.1, 56.1

[56] References Cited

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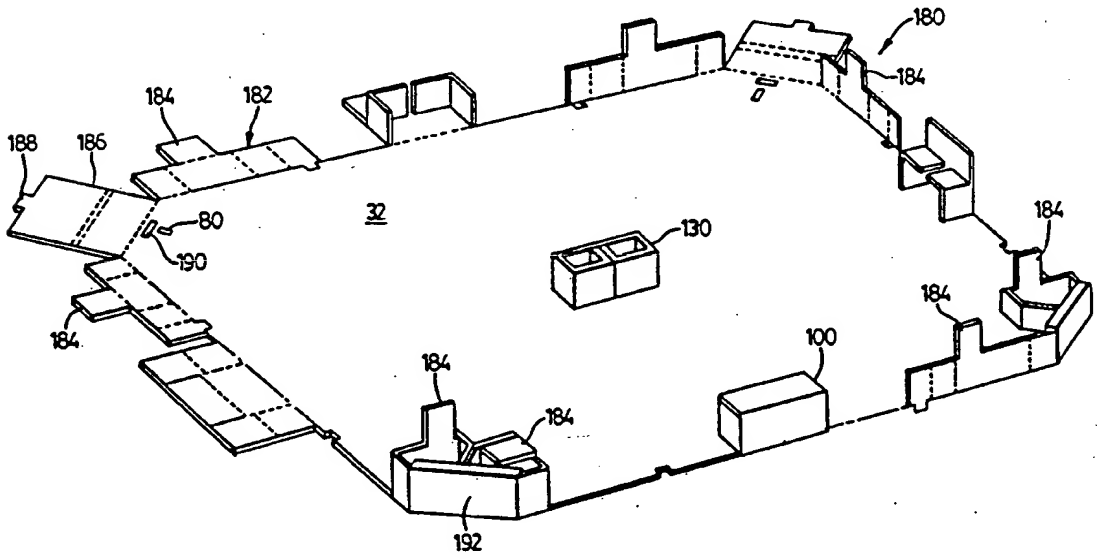
Primary Examiner—Kenneth J. Dorner
Assistant Examiner—Gerald A. Anderson
Attorney, Agent, or Firm—Shlesinger, Arkwright & Garvey

[57] ABSTRACT

There is disclosed a lightweight pallet base of unitary, one piece construction fabricated of a stiff foldable sheet material such as corrugated cardboard. In one aspect the pallet comprises a central platform having foldable corner and side flaps attached to the central platform. The corner flaps and a portion of the side edge flaps adjacent the corners are folded and interlocked to form corner support members. The central portion of the side edge support members are folded to form side edge supports located midway between the corners of the platform. The support members are of one piece construction with the central platform with the pallet being assembled from a die cut blank. Different embodiments of the unitary pallet use the foldable side edge flaps located adjacent the corner flaps in different ways to reinforce the corner support members. In another aspect a load bearing pallet tray is secured to the unitary pallet base which provides a combination having improved beam strength.

30 Claims, 12 Drawing Sheets



United States Patent [19]

Shea

[11] Patent Number: 5,012,614

[45] Date of Patent: May 7, 1991

[54] BLOW-MOLDED UNITARY THERMOPLASTIC THRESHOLD

[76] Inventor: Gregory T. Shea, 8797 Birgham Ct., Dublin, Ohio 43017

[21] Appl. No.: 440,498

[22] Filed: Nov. 22, 1989

[51] Int. Cl.[5] E06B 1/70

[52] U.S. Cl. 49/468; 49/471

[58] Field of Search 49/468, 467, 409, 471, 49/470

[56] References Cited

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Primary Examiner—Philip C. Kannan

Attorney, Agent, or Firm—Michael L. Keller

[57] ABSTRACT

The present invention is addressed to a thermoplastic threshold of unique configuration and which is manufactured by blow molding techniques. The novel thermoplastic threshold is hollow and sealed to the outside. It is of one-piece construction made by blow molding a parison of thermoplastic material. The threshold has a bottom adapted to rest on a lower horizontal jamb and has stiffener ribs disposed at the bottom. A planar tread segment is disposed to the outside. A transverse, U-shaped channel has upstanding vertical walls and is adapted to receive a sill. The bottom of the channel has apertures for receiving threaded elongate members (e.g. screws) for adjusting the height of a sill that can be disposed within the channel. The outside disposed vertical channel wall is joined about its top to an outer, sloping wall or transition wall that meets the tread segment. At predetermined locations, the bottom of the threshold is recessed upwardly to engage the bottom of the outside vertical channel wall and the sloping wall at its meeting with said tread segment. These bottom recesses have upwardly projecting side weirs disposed from the inner vertical wall to said sloping wall/tread segment meeting. There is a hole in the vertical wall at its bottom and in said sloping wall at its meeting with said tread segment for water to flow from within the channel through said holes and onto said tread segment (e.g., a weep system). The bottom or top adjacent such sealed threshold end contains a channel parallel to each end and adapted to present, with each said end, at least two walls for said threshold to be attached to vertical side jambs for its installation.

14 Claims, 3 Drawing Sheets